Printing Motion-Picture Films Immersed in a Liquid. Part III. Evaluation of Liquids. *D. A. Delwiche, J. D. Clifford, W. R. Weller* (for complete paper, see *Jour. SMPTE, 67:* 678-686, Oct. 1958)

Electronics vol. 32, Jan. 16, 1959

Transistorizing 16-mm TV Remote Film Camera (p. 58) *E. M. Tink*

International Projectionist vol. 33, Dec. 1958

Handling and Projection of 16-mm Sound Motion-Picture Film (p. 5) *R. A. Mitchell*

Color Temperature: What Is It? (p. 10) *W. W. Lozier*

vol. 34, Jan. 1959

New Insights into the Carbon Arc (p. 5) *R. A. Mitchell*

Ampex Mag-Optical Converter for Theatre Sound Systems (p. 8)

Kino-Technik vol. 13, Jan. 1959

Verstärkerketten und Pegeldiagramme der Film- und Fernseh-Tontechnik (p. 2) *P. P. Süther*

Verbesserte Magnetton-Bänder auf Polyesterbasis (p. 8) *A. Kastle*

Fortschritte in der Herstellung von Hör- und Sprechköpfen (p. 11) *W. Dziekan*

Grundlagen für Planung und Bau moderner Fernsehstudios (Fl) *P. P. Süther*

Einsatz des Fernsehens in der Spielfilm-Produktion (F6) *E. v G.*

RCA Review vol. 29, Dec. 1958

On the Quality of Color-Television Images and the Perception of Color Detail (p. 495) *O. H. Schade* (also *Jour. SMPTE, 67:* 801-819, Dec. 1958)

Drive Factor and Gamma of Conventional Kinescope Guns (p. 564) *R. D. Gold* and *J. W. Schwartz*

Automatic Control of Video Tape Equipment at NBC, Burbank (p. 642) *R. W. Byloff*

books reviewed

Photosensitors

By W. Summer. Published (1958) by the MacMillan Company, New York. XVI + 585pp. illus. diagrams + 90 pp. references and index. 5½ by 8½-in. Price $21.00.

The book is titled by the generic term, photosensitors, which the author has coined to cover any type of photoelectric element. It deals with the elementary characterization of various photoelectric devices and discusses a large number of industrial applications.

The introductory chapters describe the action and characteristics of photosensitors and will be most helpful to those wishing to familiarize themselves in this device field for the first time. The treatment provides engineers and technicians with basic device fundamentals for applications engineering. Device physics is appropriately discussed only in elementary terms. An elementary background in associated optics is also provided in four chapters.

Some 20 chapters are devoted to the detailing of principles and numerous applications of photosensitors in industry ranging from protective devices to automatic door openers. One is struck by the exceedingly large number of applications which are uniquely assembled in some detail for ready reference. Designers should find *Photosensitors* a valuable guide which charts the present state of the art and provides the background and inspiration on which new controls may be developed.

The bibliography is monumental. A total of 1960 literature references are listed, ranging from the year 1635 to 1952. Six hundred and eighty-seven United States, British, French and German patents are listed in the photoelectric device and applications field. The bibliography and patent sections make this book of great value for both technical and patent reference.—*R. W. Sears*, Bell Telephone Laboratories, Murray Hill, N.J.

Practical Electroacoustics

By Michael Rettinger. Published (1955) by Chemical Publishing Co., 212 Fifth Ave., New York, 271 pp. Illus. Graphs. 5½ by 8½ in. Price $10.00.

(*Edit. Note: Through no fault of the present reviewer, this book has far too long awaited attention in the* Journal.)

This little book is of particular interest to those whose specialty is sound recording or the pickup of music and speech for broadcast. The text is easy to read and it is not intended to be mathematical. The

author's experiences color the book and are especially valuable in controversial areas, such as, for example, microphone placement. The author states, "The purpose of this book is to present engineering information on electroacoustics, covering both basic principles and practical applications."

The sections on microphones, loudspeakers and constant resistance crossover networks are clear and cover items of equipment commonly used in broadcast and recording studios and control rooms. This reviewer found the chapter on public address systems interesting because of the several good examples cited.

The chapter on architectural acoustics would hardly meet wide-spread acceptance by acousticians. Very few acoustical consultants would put much faith in "dynamic symmetry" as a factor in acoustical design. Convex splays for broadcast and motion studios are no longer in vogue either in the USA or in Europe.

The chapter on magnetic recording is long and informative and contains in it interesting practical data. Because the book was published in 1955, some of this material is already dated. The chapters on magnetic structures and vibrations did not thoroughly satisfy the reviewer. The magnetic structures chapter seems suited to students learning practical magnetics while the chapter on vibrations seemed too abbreviated to help the recording or radio engineer. Nevertheless, the information is accurate and easy to follow.

Recording and broadcast engineers as well as those working with public-address systems and home music reproduction should find this book particularly helpful.—*Leo L. Beranek*, Bolt Beranek and Newman Inc., Cambridge 38, Mass.

Sensitometry in Practice

By Keith M. Hornsby. Published (1958) by Henry Greenwood and Co., 24 Wellington St., London W.C.2. Price 19s 6d plus postage 10d if ordered from publisher. Distributed in the United States at $4.75 by American Photographic Book Publishing Co., 33 W. 60 St., New York 23.

This book is a fairly complete, practical and up-to-date treatise on sensitometry. It presents not only the basic principles but also the practical procedures for carrying out sensitometric investigations and practicing sensitometric control.

The fundamental concepts and definitions of sensitometry are given with a touch of historical background and numerous references to practical photographic situations. The elements of sensitometric testing are presented in separate chapters on exposure, processing, densitometry, preparation of characteristic curves and evaluations of characteristic curves.

The basic essentials of a sensitometer are listed as a light source of constant intensity, a light modulating device and a holder for the sensitive material under tests. A shutter and filter holders are mentioned as "refinements." The incandescent electric lamp is said to be universally used as a sensitometric light source. The truth of this statement could be questioned because the electronic flash source should be recognized as a sensitometric light source since it is used in the Mark VI Sensitometer of Edgerton, Germeshausen and Grier, Inc. Time-scale and intensity-scale modulating systems, shutters and filters are discussed. Two sensitometers which are commercially available in England are mentioned. These are the Eastman IIb Sensitometer and the Eastman High Intensity Sensitometer, Model 6. The Model 6 Sensitometer is described, and it is evidently the same instrument as the Kodak Pathe Type 6 Sensitometer. For those who would rather make a simple, less expensive sensitometer, Mr. Hornsby tells how such an instrument can be made, and he gives practical suggestions about its construction and adjustment.

For the processing of sensitometric exposures, Mr. Hornsby claims that satisfactory results can be obtained without the installation of special sensitometric processing machines, which he implies are practical only for large laboratories such as the research laboratories of photographic manufacturers. Developing methods suggested are the vacuum flask method, brush development and roll film tank development. Although simple processing methods are suggested, the necessity for good control of temperature and agitation

is stressed. Again, practical suggestions for achieving this are given.

The chapter on density measurement and densitometers gives a good description of specular, diffuse and doubly diffuse density and their relationship to the effective density of a photographic image in contact printing and enlarging. Visual and photoelectric densitometers are discussed and several commercial densitometers are described.

The author goes into considerable detail on the preparation of the characteristic curve, because it is the commonest operation in sensitometry and is the source of the majority of sensitometric data. Graph paper, plotting templates, step identification and the relationship between exposing wedge densities and log E calibration are factors that are included. Even the drawing of a smooth curve and the detection of haphazard errors in plotted points are discussed.

Under the heading of "Evaluating the Characteristic Curve," Mr. Hornsby writes not only about the principal properties of a photographic material such as fog, contrast and speed, but he also devotes space to characteristic curve shape changes and distortions. Various speed criteria are well described. The Hurter & Driffield system, the Scheiner and DIN criteria, the Weston system and the gradient criteria are included. The derivation of the $0.3\bar{G}$ speed system, now the basis for ASA and BSI speeds and exposure indexes, is covered adequately and objectively.

The chapter on positive materials is about the special problems associated with the sensitometry of photographic papers. Reflection densitometry systems and some commercially available reflection densitometers are described. The properties of the paper characteristic curves which are of value in determining the significant properties of a paper are given as the maximum usable density, the minimum usable gradient and the exposure range between these two points. The section on matching the negative and paper contains the statement, "It is a sad reflection on public discrimination that in the D. and P. industry (presumably the Developing and Printing industry) where exposure and subject variations are great, it is becoming standard practice to use only one grade of paper in semiautomatic printers without, apparently, displeasing the majority of customers."

Since the accurate determination of absolute spectral sensitivity and contrast characteristics of photographic materials is outside the scope of normal sensitometry according to Mr. Hornsby, his chapter on spectral sensitivity deals primarily with the qualitative evaluation of spectral sensitivities obtained with simple instruments such as the spectrograph, and with color filters.

The sensitometry of multilayer color materials is covered in the longest chapter in the book. The problem in the exposure, processing and densitometry of color materials for sensitometric tests is clearly explained and adequately covered for a book of this kind. Although Mr. Hornsby agrees that analytical color densities cannot be evaluated as easily as integral densities, he says that an understanding of the principles of analytical color densitometry is desirable if the limitations of integral densitometry are to be appreciated. He therefore includes an explanation of analytical density in this chapter in addition to the section on integral density. Pseudo-analytical densitometry, which consists of integral densitometry of single-dye scales obtained by red, green, or blue light exposure, is offered as a simple method that can be used in some testing situations. The limitations of pseudo-analytical densitometry are noted, however.

The chapter entitled, "Product Testing" tells how sensitometric tests can be used to evaluate the performance of a new sensitive material or processing solution. Time-gamma curves, time-temperature curves and tone reproduction curves are relationships that are derived by sensitometric tests. The estimation of the true effects of treatments such as hypersensitization, latensification, intensification and reduction can only be carried out sensitometrically, says Mr. Hornsby.

A chapter on sensitometric control opens with the statement: "By far the greatest application of sensitometric methods by users of photographic materials is in the control of processing." This chapter tells how to choose a developer which will provide the easiest control, how to maintain constant development and how to choose and store a film for control test use. Methods of recording and evaluating control test data are discussed. The control of drift by adjusting the replenishment rate is thoroughly covered.

The sensitometry of miscellaneous light-sensitive materials is taken up in the next chapter. The special sensitometric procedures necessary in the sensitometry of reversal materials, variable contrast materials and ultraviolet sensitive materials are described. The over-riding principle is always the same, says Mr. Hornsby, namely, the material is given a series of accurately controlled exposures under conditions which are as close as possible to those used in practice; it is then processed under standard conditions, the densities measured and a curve plotted from which numerical expressions of the material's characteristics can be obtained.

The final chapter in this practical book is on approximate methods and is aimed at those in the photographic business who cannot justify the financial expenditures for the equipment necessary for obtaining accurate sensitometric results. Mr. Hornsby says that very valuable information can be obtained from the use of quite simple improvised equipment, provided the limitations of its use are recognized, and provided also that the user's basic knowledge of sensitometry is sound. This book certainly gives the reader every opportunity to acquire a basic knowledge of sensitometry. It is evident that the author's intention is to make sensitometry available and understandable to the commercial photographer, the scientific photographer, the photofinisher and other workers in the field of photography who may have considered sensitometry as a highly technical subject of interest only to the photographic manufacturer and research worker. Mr. Hornsby has attained this objective.—*Fred Eisen*, Kodak Research Laboratories, Eastman Kodak Co., Rochester 4, N.Y.

Photo Chemistry in Black-and-White and Color Photography

By George T. Eaton. Published (1957) by Eastman Kodak Co., Rochester 4, N.Y. 124 pp. 8½ in. by 5¾ in. Illus. Price $1.25.

An excellent little book written for photographers and technicians who have had very little formal training in chemistry, physics or photographic theory. All phases of photographic processing in black-and-white and color, negative-positive and reversal are discussed briefly and simply to provide a good beginning to the study of this field.

A somewhat better discussion of the washing process appears here than in many of the more technical books on photography, giving this phase more of the relative importance that it deserves. The explanation of pH and its importance in photography is so clearly made that no photographer should have difficulty in understanding it. The book is well illustrated and nicely lithographed.—*H. L. Baumbach,* Unicorn Engineering Corp., 1040 N. McCadden Pl., Hollywood 38.

Wir Filmen Mit 8mm

By Heinrich Freytag. Published (1958) by Fotokino Verlag-Halle, Halle (Saale) C 2, Muhlweg 19, Germany. 140 pp. Illus. 4¾-in. by 6¾ in. Price DM 5.10

Beginners in the field of home movies who read German will find this small book a useful introduction to the field. It is sized to slip handily into one's pocket. The book briefly presents all the information needed to make a start with the 8mm camera, covering the fields of camera technique, home movie production, editing, titling, and projection. Exposure is outlined for black-and-white, Kodachrome, and Agfacolor films, but no film processing is mentioned. The 140 pages are well illustrated and, while the book is aimed at users of 8mm film, the remarks generally apply also to 16mm film.—*Robert S. Barrows,* Kodak Research Laboratories, Eastman Kodak Co., Rochester 4, N.Y.

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Complete set of Transactions, except Nos. 6 and 9, and all Journals published to date, including indexes. All in good condition. Price $500. Also extra copies of Transactions Nos. 2, 3, 4, 5, 8, 21, 31, 32. W. W. Hennessy, RFD #2, Pound Ridge, N. Y.

Complete set of Journals from May 1937 to June 1954, including special volumes and membership directories, excellent condition; also Mar., May 1934 and July 1935 issues. Write: Harry R. Lubcke, 2443 Creston Way, Hollywood 28, Calif. HO 9-3266.

Jan.-Dec. 1950; Jan., Feb., Apr.-Dec. 1951; Jan.-Mar. 1952. Also available are vols. 6 and 7 of The Television Society (British) covering the period Jan. 1950 through Sept. 1955. Write: Andrew N. McClellan, 65 Hillside Drive, Toronto 6, Ont., Canada.

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All Journals June 1940 to Oct. 1958, except Aug. 1943, Jan., May, Nov. 1946, Dec. 1953. Write: David Waddell, 95 North St., Stoneham 80, Mass.

Feb. 1937; May–Dec. 1938; 1939–1943 complete; 1944 complete except for May; 1945 complete except for Jan.; 1946 complete; 1947 complete except for Apr., May, June; 1948 complete except for June; 1949–1950 complete; Jan., Feb., Mar. 1951; 1952 complete; Feb., Mar. 1953. Also Edison Home Kinetoscope in operating condition, with 4 reels of original film and 2 glass slides. Bill Straley, 123 Arroya Vista Dr., San Antonio 1, Texas.

Jan., Mar. 1958; Feb.–Apr., June–Sept., Dec. 1947; Jan., July–Oct., Dec. 1946; Feb. 1937; June 1936; Index 1936–45. Fine condition; $1 each. James G. Barrick, 1278 West 103 St., N. W., Cleveland 2, Ohio.

Wanted

Jan. 1938. E. Raymond Arn, Film Associates, Inc., 4600 S. Dixie Ave., Dayton 9, Ohio.

High-Speed Photography, Vols. 2 & 3. Morton Sultanoff, Terminal Ballistics Laboratory, Aberdeen Proving Ground, Md.

High-Speed Photography, Vols. 1, 2 & 3. John H. Waddell, Fairchild Camera & Instrument Co., 5 Aerial Way, Syosset, N. Y.

Jan. 1938, Jan. 1949. Dept. of Cinema, Univ. of Southern Calif., University Park, Los Angeles 7. Att: Herbert E. Farmer.

Transactions No. 1, 1916 ($5 offered); No. 6, 1918 ($10 offered); No. 7, 1918 ($10 offered). James G. Barrick, 1278 West 103 St., N.W., Cleveland 2, Ohio.